



DRAINAGE DESIGN MANAGEMENT SYSTEM FOR WINDOWS

VERSION 5.3.0

TUTORIAL # 6

CUSTOMIZING HEC-RAS TABLE FOR

DDMSW

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KVL Consultants, Inc.

CUSTOMIZING HEC-RAS TABLE FOR DDMSW

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CUSTOMIZING HEC-RAS TABLE FOR DDMSW

DATE UPDATED: 05/13/2016

1.0 INTRODUCTION

This tutorial outlines the procedure in customizing a HEC-RAS table that identifies which hydraulic parameters are to be included in the table as well as the column wise order by which these parameters are defined. HEC-RAS can save the custom format defined by the user so that it serves as a template that can be accessed and used anytime. The imported data could be used for river mechanics analysis that includes scour, sediment yield, riprap sizing, launchable riprap, and lateral erosion.

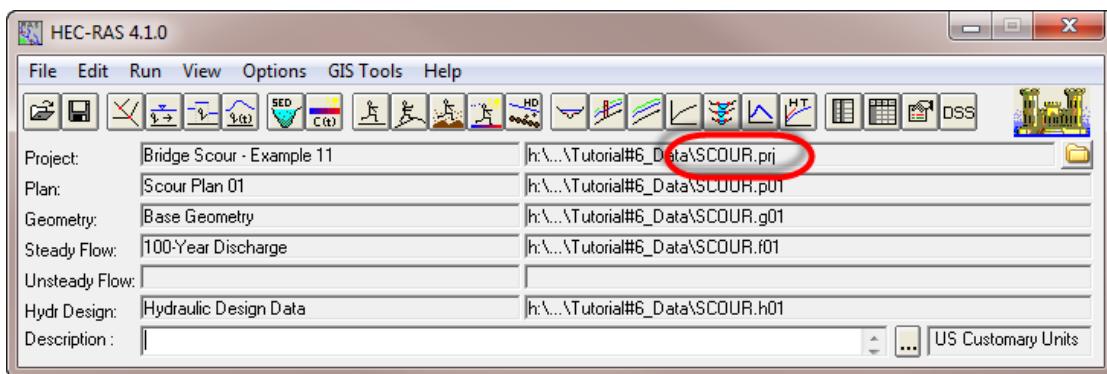
The content of this tutorial document was tested and updated using **HEC-RAS 4.1.0** and **DDMSW 5.3.0**.

2.0 PROJECT FILES

The project files needed for this tutorial are assembled in a compressed file called “SCOUR.zip”. The most important file is the “SCOUR.prj” which defines various addresses to access required project component files (e.g., *.p01, *.g01, *.f01, etc). If the “SCOUR.prj” and other associated files do not exist, unzip the provided “SCOUR.zip” file.

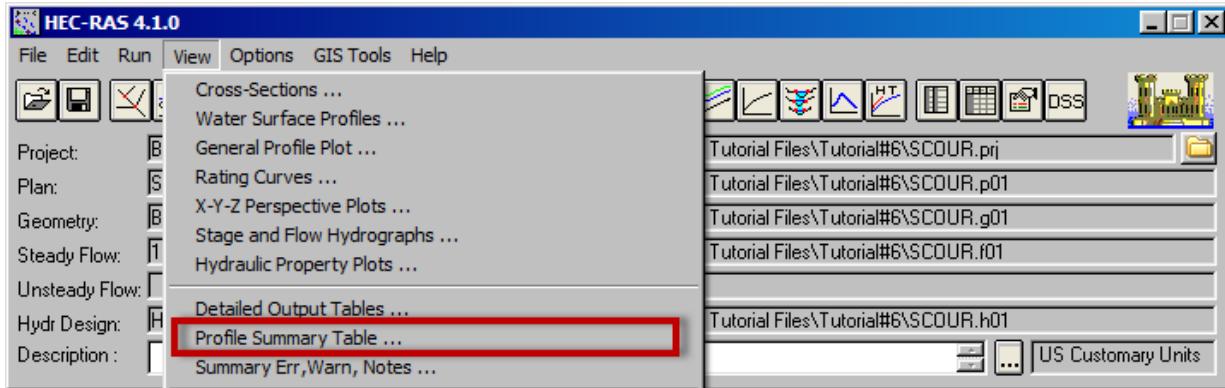
3.0 OPEN A HEC-RAS PROJECT

After launching the HEC-RAS program, open a HEC-RAS project. For purposes of illustration using this tutorial, let us use a pre-packaged HEC-RAS project called, “SCOUR.prj”. Make sure that the project has already been run.

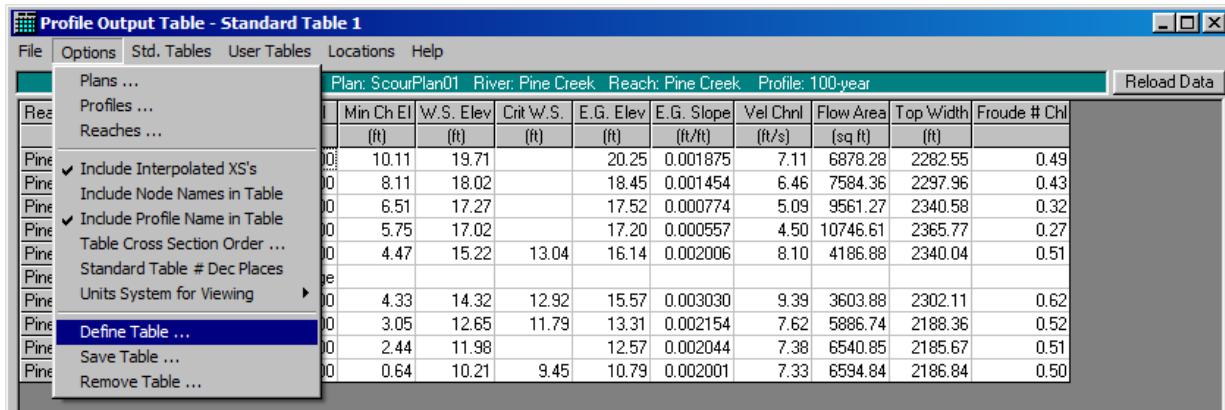


4.0 OPEN THE PROJECT OUTPUT TABLE AND CREATE A CUSTOM TABLE

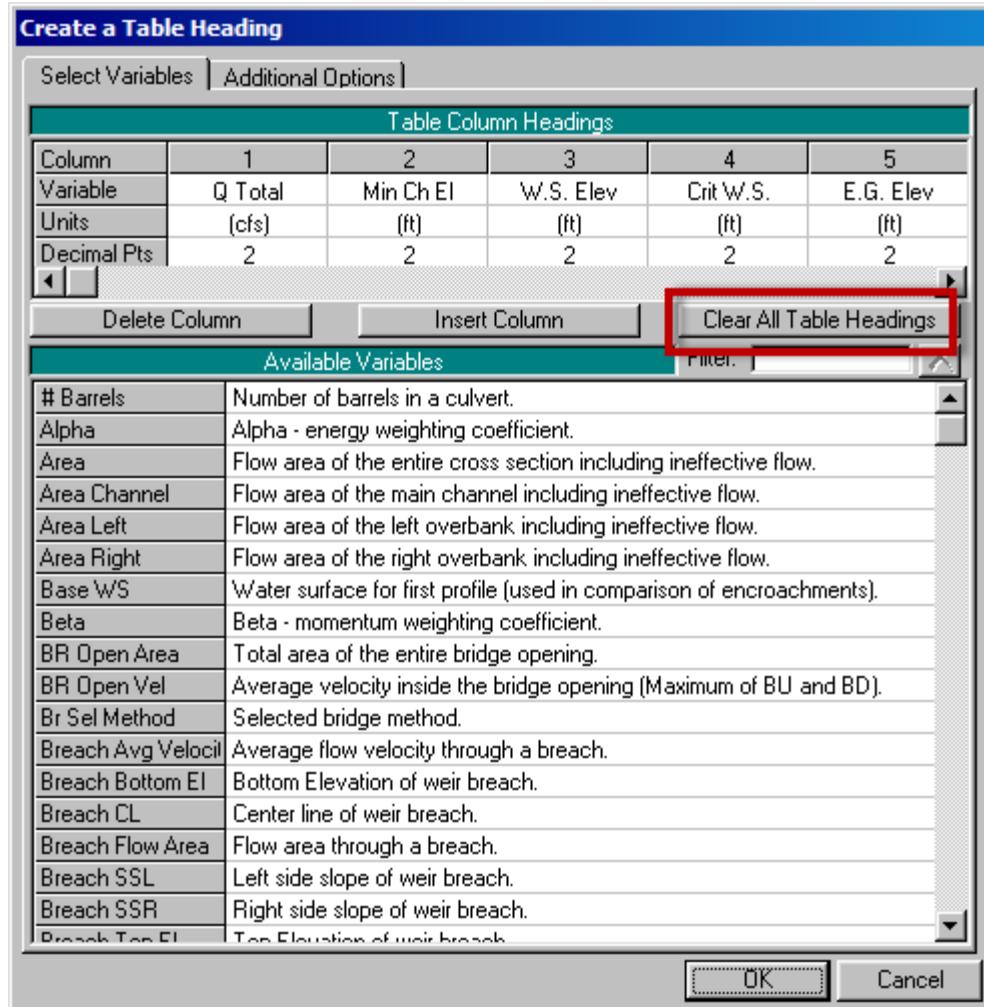
- 4.1 To start the customization of the table, open the **PROFILE OUTPUT TABLE** form (**View ➔ Profile Summary Table ...**).



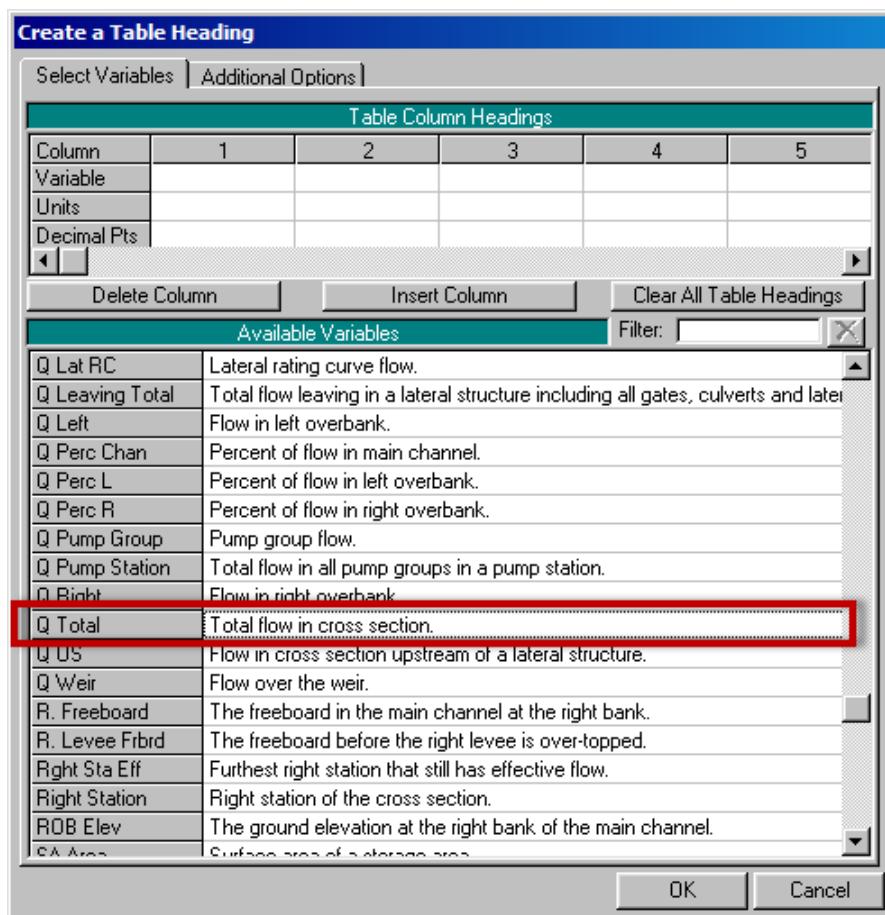
4.2 On the **PROFILE OUTPUT TABLE** form, open the Create a Table Heading form (*‘Options → Define Table ...’*).



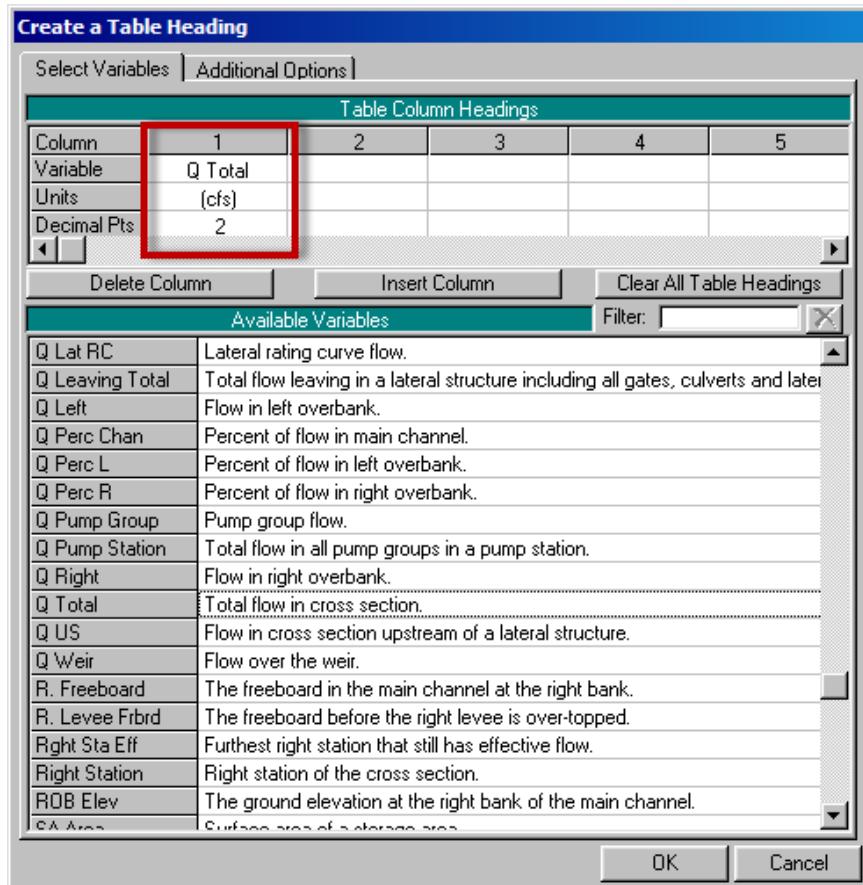
4.3 On the **CREATE A TABLE HEADING** form, click the '**Clear All Table Headings**' button at the middle of the form.



- 4.4 Once all the table headings have been cleared, find the "Q Total" variable in the list of available variables shown below.



- 4.5 Double-click on the “Q Total” variable. This action should insert the “Q Total” variable in the first available column of the table (Column 1). Please note that the default number of decimal points is 2.



- 4.6 Repeat Steps 4.4 and 4.5 for the following variables: "E.G. Slope", "Mann Wtd Chnl", "Mann Wtd Left", "Mann Wtd Rght", "Flow Area", "W.P. Total", "Top Width", "Hydr Depth", "Max Chl Dpth", "Vel Total", "Hydr Depth C", "Vel Chnl", and "Froude# Chnl". The variables must be entered in the listed order; otherwise, the DDMSW program will not be able to import the data correctly. Click the '**OK**' button to return to the **PROFILE OUTPUT TABLE** form.

The **PROFILE OUTPUT TABLE FORM** should look like the one shown below.

Profile Output Table - Standard Table 1

File Options Std. Tables User Tables Locations Help

HEC-RAS Plan: Scour Plan 1 River: Pine Creek Reach: Pine Creek Profile: PF 1

Reach	River Sta	Profile	Q Total (cfs)	W.P. Total (ft)	Hydr Depth (ft)	Mann Wtd Total (sq ft)	Flow Area (ft)	Max Chl Dpth (ft)	E.G. Slope (ft/ft)	Hydr Depth C (ft)	Vel Chnl (ft/s)
Pine Creek	10.90	PF 1	30000.00	2283.26	3.02	0.031	6898.71	9.61	0.001861	6.67	7.09
Pine Creek	10.71	PF 1	30000.00	2300.87	3.35	0.032	7705.07	9.96	0.001394	7.02	6.35
Pine Creek	10.55	PF 1	30000.00	2343.96	4.14	0.034	9704.96	10.82	0.000743	7.88	5.01
Pine Creek	10.48	PF 1	30000.00	2369.61	4.61	0.035	10912.73	11.34	0.000534	8.39	4.43
Pine Creek	10.37	PF 1	30000.00	650.20	6.45	0.032	4190.02	10.76	0.002001	7.70	8.10
Pine Creek	10.36	Bridge									
Pine Creek	10.35	PF 1	30000.00	625.19	5.78	0.032	3611.20	10.00	0.003011	7.06	9.38
Pine Creek	10.23	PF 1	30000.00	1700.20	3.46	0.031	5886.98	9.60	0.002154	6.66	7.62
Pine Creek	10.17	PF 1	30000.00	2185.94	2.99	0.030	6540.96	9.54	0.002044	6.60	7.38
Pine Creek	10.00	PF 1	30000.00	2187.11	3.02	0.031	6594.84	9.57	0.002001	6.63	7.33

Profile Output Table - Standard Table 1

File Options Std. Tables Locations Help

HEC-RAS Plan: ScoutPlan01 River: Pine Creek Reach: Pine Creek (Reload Data)

Reach	River Sta	Profile	Q Total (cfs)	W.P. Total (ft)	Hydr Depth (ft)	Mann Wtd Total (sq ft)	Flow Area (ft)	Max Chl Dpth (ft)	E.G. Slope (ft/ft)	Hydr Depth C (ft)	Vel Chnl (ft/s)
Pine Creek	10.90	100-year	30000.00	2282.81	3.01	0.031	6878.28	9.60	0.001875	6.66	7.11
Pine Creek	10.90	10-year	8500.00	792.01	2.26	0.024	1786.84	6.93	0.001993	3.99	5.21
Pine Creek	10.71	100-year	30000.00	2298.24	3.30	0.032	7584.36	9.91	0.001454	6.97	6.46
Pine Creek	10.71	10-year	8500.00	792.99	2.26	0.024	1788.78	6.93	0.001989	3.99	5.21
Pine Creek	10.55	100-year	30000.00	2340.89	4.09	0.034	9561.27	10.76	0.000774	7.82	5.09
Pine Creek	10.55	10-year	8500.00	811.93	2.23	0.024	1811.99	6.96	0.001936	4.02	5.16
Pine Creek	10.48	100-year	30000.00	2366.10	4.54	0.034	10746.61	11.27	0.000557	8.32	4.50
Pine Creek	10.48	10-year	8500.00	850.29	2.17	0.023	1841.88	7.00	0.001875	4.05	5.11
Pine Creek	10.37	100-year	30000.00	650.20	6.44	0.032	4186.88	10.75	0.002006	7.69	8.10
Pine Creek	10.37	10-year	8500.00	650.20	2.78	0.027	1808.14	7.09	0.001799	4.04	4.99
Pine Creek	10.36				Bridge						
Pine Creek	10.35	100-year	30000.00	625.19	5.77	0.032	3603.88	9.99	0.003030	7.05	9.39
Pine Creek	10.35	10-year	8500.00	598.12	2.84	0.027	1696.92	6.94	0.002020	4.00	5.25
Pine Creek	10.23	100-year	30000.00	1700.20	3.46	0.031	5886.74	9.60	0.002154	6.66	7.62
Pine Creek	10.23	10-year	8500.00	769.62	2.30	0.024	1771.55	6.92	0.002011	3.98	5.23

4.7 To save this Table, click on the ‘Save Table ...’ (‘Options ➔ Save Table ...’).

Profile Output Table - Standard Table 1

File Options Std. Tables Locations Help

Plans ...
Profiles ...
Reaches ...
Pine Include Interpolated XS's
Pine Include Node Names in Table
Pine Include Profile Name in Table
Pine Table Cross Section Order ...
Pine Standard Table # Dec Places
Pine Units System for Viewing
Pine Define Table ...
Pine **Save Table ...** (highlighted)
Pine Remove Table ...

Plan01 River: Pine Creek Reach: Pine Creek (Reload Data)

Hydr Depth (ft)	Mann Wtd Total (sq ft)	Flow Area (ft)	Max Chl Dpth (ft)	E.G. Slope (ft/ft)	Hydr Depth C (ft)	Vel Chnl (ft/s)					
3.01	0.031	6878.28	9.60	0.001875	6.66	7.11					
2.26	0.024	1786.84	6.93	0.001993	3.99	5.21					
3.30	0.032	7584.36	9.91	0.001454	6.97	6.46					
2.26	0.024	1788.78	6.93	0.001989	3.99	5.21					
4.09	0.034	9561.27	10.76	0.000774	7.82	5.09					
2.23	0.024	1811.99	6.96	0.001936	4.02	5.16					
4.54	0.034	10746.61	11.27	0.000557	8.32	4.50					
2.17	0.023	1841.88	7.00	0.001875	4.05	5.11					
6.44	0.032	4186.88	10.75	0.002006	7.69	8.10					
2.78	0.027	1808.14	7.09	0.001799	4.04	4.99					
Pine Creek	10.36		Bridge								
Pine Creek	10.35	100-year	30000.00	625.19	5.77	0.032	3603.88	9.99	0.003030	7.05	9.39
Pine Creek	10.35	10-year	8500.00	598.12	2.84	0.027	1696.92	6.94	0.002020	4.00	5.25
Pine Creek	10.23	100-year	30000.00	1700.20	3.46	0.031	5886.74	9.60	0.002154	6.66	7.62
Pine Creek	10.23	10-year	8500.00	769.62	2.30	0.024	1771.55	6.92	0.002011	3.98	5.23

The screenshot shows the HEC-RAS software interface. The main window title is "Profile Output Table - Standard Table 1". The menu bar includes "File", "Options", "Std. Tables", "User Tables", "Locations", and "Help". Below the menu bar, there's a toolbar with icons for "Plans ...", "Profiles ...", and "Reaches ...". The main area displays a table titled "Scour Plan 1" with columns: W.P. Total (ft), Hydr Depth (ft), Mann Wtd Total (sq ft), Flow Area (ft), Max Chl Dpth (ft), E.G. Slope (ft/ft), Hydr Depth C (ft), and Vel Chnl (ft/s). The table contains several rows of data. A context menu is open on the left side of the table, listing options: "Include Interpolated XS's", "Include Node Names in Table", "Include Profile Name in Table", "Table Cross Section Order ...", "Standard Table # Dec Places", "Units System for Viewing", "Define Table ...", "Save Table ...", and "Remove Table ...". The "Save Table ..." option is highlighted with a blue selection bar.

- 4.8 Name the Table, such as “**DDMSW Scour**”, and click ‘OK’. The format of the custom Table is now saved in the computer’s memory.



- 4.9 When HEC-RAS is started again, the “**DDMSW Scour**” table can be selected from the “**User Tables**” menu on the **PROFILE OUTPUT TABLE** form.

Profile Output Table - DDMSW Scour

User Tables Locations Help

✓ DDMSW Scour River: Pine Creek Reach: Pine Creek Reload Data

Reach	River Sta	Profile	Q Total	W.R. Total	Hydr Depth	Mann Wtd Total	Flow Area	Max Chl Dpth	E.G. Slope	Hydr Depth C	Vel Chnl
			(cfs)	(ft)	(ft)	(sq ft)	(ft)	(ft/ft)	(ft)	(ft/s)	
Pine Creek	10.90	100-year	30000.00	2282.81	3.01	0.031	6878.28	9.60	0.001875	6.66	7.11
Pine Creek	10.90	10-year	8500.00	792.01	2.26	0.024	1786.84	6.93	0.001993	3.99	5.21
Pine Creek	10.71	100-year	30000.00	2298.24	3.30	0.032	7584.36	9.91	0.001454	6.97	6.46
Pine Creek	10.71	10-year	8500.00	792.99	2.26	0.024	1788.78	6.93	0.001989	3.99	5.21
Pine Creek	10.55	100-year	30000.00	2340.89	4.09	0.034	9561.27	10.76	0.000774	7.82	5.09
Pine Creek	10.55	10-year	8500.00	811.93	2.23	0.024	1811.99	6.96	0.001936	4.02	5.16
Pine Creek	10.48	100-year	30000.00	2366.10	4.54	0.034	10746.61	11.27	0.000557	8.32	4.50
Pine Creek	10.48	10-year	8500.00	850.29	2.17	0.023	1841.88	7.00	0.001875	4.05	5.11
Pine Creek	10.37	100-year	30000.00	650.20	6.44	0.032	4186.88	10.75	0.002006	7.69	8.10
Pine Creek	10.37	10-year	8500.00	650.20	2.78	0.027	1808.14	7.09	0.001799	4.04	4.99
Pine Creek	10.36	Bridge									
Pine Creek	10.35	100-year	30000.00	625.19	5.77	0.032	3603.88	9.99	0.003030	7.05	9.39
Pine Creek	10.35	10-year	8500.00	598.12	2.84	0.027	1696.92	6.94	0.002020	4.00	5.25
Pine Creek	10.23	100-year	30000.00	1700.20	3.46	0.031	5886.74	9.60	0.002154	6.66	7.62
Pine Creek	10.23	10-year	8500.00	769.62	2.30	0.024	1771.55	6.92	0.002011	3.98	5.23

Profile Output Table - DDMSW Scour

User Tables Locations Help

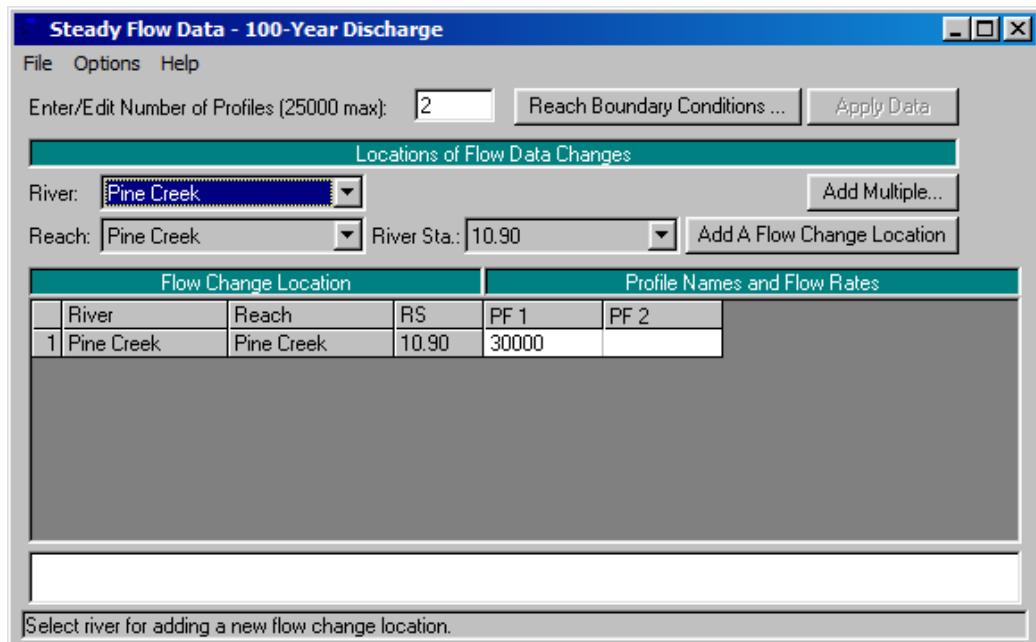
HEC-RAS ✓ DDMSW Scour River: Pine Creek Reach: Pine Creek Profile: PF 1 Reload Data

Reach	River Sta	Profile	Total	Hydr Depth	Mann Wtd Total	Flow Area	Max Chl Dpth	E.G. Slope	Hydr Depth C	Vel Chnl	
			(cfs)	(ft)	(ft)	(sq ft)	(ft)	(ft/ft)	(ft)	(ft/s)	
Pine Creek	10.90	PF 1	30000.00	2283.26	3.02	0.031	6898.71	9.61	0.001861	6.67	7.09
Pine Creek	10.71	PF 1	30000.00	2300.87	3.35	0.032	7705.07	9.96	0.001394	7.02	6.35
Pine Creek	10.55	PF 1	30000.00	2343.96	4.14	0.034	9704.96	10.82	0.000743	7.88	5.01
Pine Creek	10.48	PF 1	30000.00	2369.61	4.61	0.035	10912.73	11.34	0.000534	8.39	4.43
Pine Creek	10.37	PF 1	30000.00	650.20	6.45	0.032	4190.02	10.76	0.002001	7.70	8.10
Pine Creek	10.36	Bridge									
Pine Creek	10.35	PF 1	30000.00	625.19	5.78	0.032	3611.20	10.00	0.003011	7.06	9.38
Pine Creek	10.23	PF 1	30000.00	1700.20	3.46	0.031	5886.98	9.60	0.002154	6.66	7.62
Pine Creek	10.17	PF 1	30000.00	2185.94	2.99	0.030	6540.96	9.54	0.002044	6.60	7.38
Pine Creek	10.00	PF 1	30000.00	2187.11	3.02	0.031	6594.84	9.57	0.002001	6.63	7.33

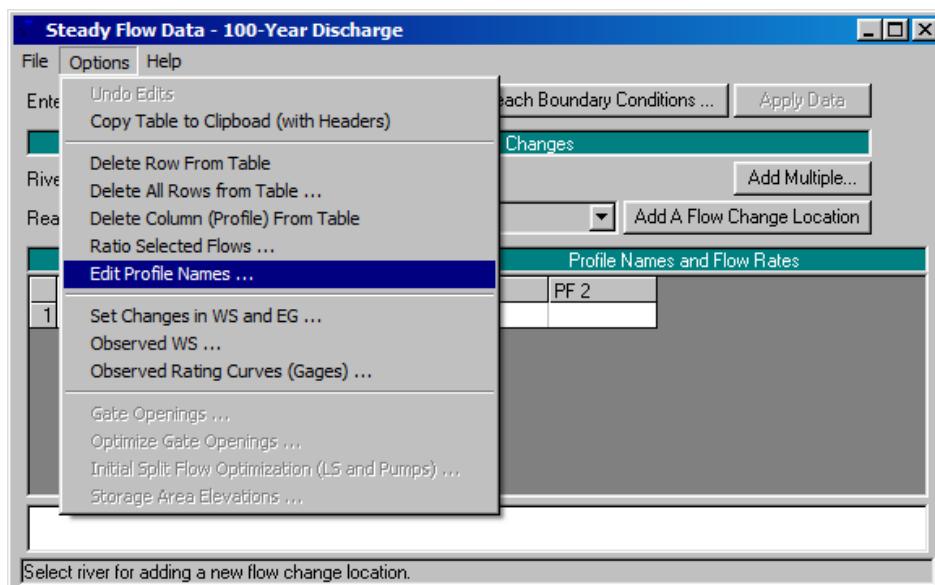
5.0 PRE-PROCESSING OF THE HEC-RAS DATA BEFORE IMPORT

The following steps show additional pre-processing within the HEC-RAS program before the table can be imported into the DDMSW program.

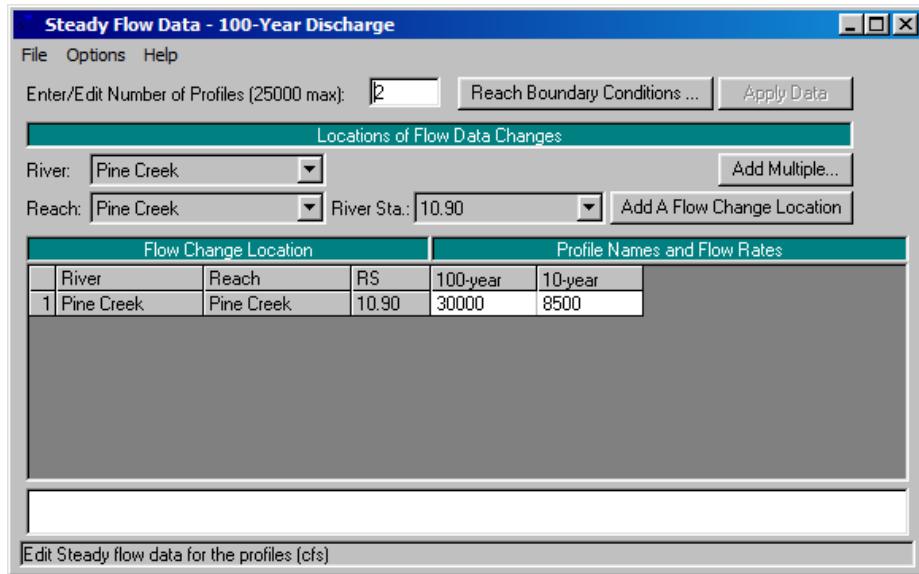
- 5.1 Two profiles in the HEC-RAS model must be specified. One profile for the design discharge (usually the 100-year flow rate), and the bankfull discharge (usually taken as the 10-year flow rate). This can be done by entering “2” in the **“Enter/Edit Number of Profiles (25000 max):”** textbox field on the **STEADY FLOW DATA** form (**‘Edit ➔ Steady Flow Data ...’**) and press the **‘Apply Data’** button.



The profiles can be given more descriptive names by using the “**Edit Profile Names ...**” (**Options → Edit Profile Names ...**’).



- 5.2 Enter ‘100-year’ and ‘10-year’ as Profile Names for Profile #1 (PF 1) and Profile #2 (PF 2), respectively. Click ‘OK’ to save.



- 5.3 On the main menu of HEC-RAS, open the **PROFILE OUTPUT TABLE** form ('**View → Profile Summary Table ...**') to access the "**DDMSW Scour**" template ('**User Tables → DDMSW Scour**'). If the "**DDMSW Scour**" table is not the active table (i.e., not checked), please repeat Step 4.9.

Profile Output Table - DDMSW Scour										
our Plan 1 River: Pine Creek Reach: Pine Creek										
Reach	River Sta	Profil	CHECKRAS	DDMSW Scour	Total	Hydr Depth	Mann Wtd Total	Flow Area	Max Chl Dpth	E.G. Slope
Pine Creek	10.90	100-year	30000.00	2283.26	3.02	0.031	6898.71	9.61	0.001861	6.67
Pine Creek	10.90	10-year	8500.00	791.97	2.26	0.024	1786.75	6.93	0.001993	3.99
Pine Creek	10.71	100-year	30000.00	2300.87	3.35	0.032	7705.07	9.96	0.001394	7.02
Pine Creek	10.71	10-year	8500.00	793.04	2.26	0.024	1788.87	6.93	0.001988	3.99
Pine Creek	10.55	100-year	30000.00	2343.96	4.14	0.034	9704.96	10.82	0.000743	7.88
Pine Creek	10.55	10-year	8500.00	812.23	2.23	0.024	1812.22	6.96	0.001936	4.02
Pine Creek	10.48	100-year	30000.00	2369.61	4.61	0.035	10912.73	11.34	0.000534	8.39
Pine Creek	10.48	10-year	8500.00	850.90	2.17	0.023	1842.36	7.00	0.001875	4.06
Pine Creek	10.37	100-year	30000.00	650.20	6.45	0.032	4190.02	10.76	0.002001	7.70

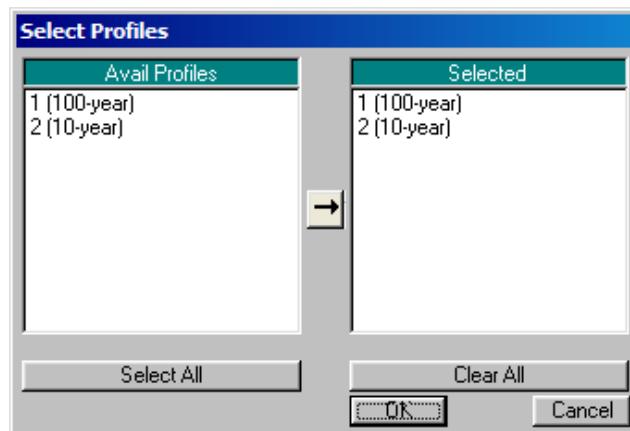
Total flow in cross section.

- 5.4 Go to the "**Options**" menu and make sure a check mark is shown next to the "**Include Profile Name in Table**" option.

Profile Output Table - DDMSW Scour									
Plan: Scour Plan 1 River: Pine Creek Reach: Pine Creek									
	W.P. Total (ft)	Hydr Depth (ft)	Mann Wtd Total (sq ft)	Flow Area (ft)	Max Chl Dpth (ft/ft)	E.G. Slope (ft/ft)	Hydr Depth C (ft)	Vel Chn (ft/s)	Reload Data
Pine Creek	2283.26	3.02	0.031	6898.71	9.61	0.001861	6.67	7.0	
Pine Creek	791.97	2.26	0.024	1786.75	6.93	0.001993	3.99	5.2	
Pine Creek	2300.87	3.35	0.032	7705.07	9.96	0.001394	7.02	6.3	
Pine Creek	793.04	2.26	0.024	1788.87	6.93	0.001988	3.99	5.2	
Pine Creek	2343.96	4.14	0.034	9704.96	10.82	0.000743	7.88	5.0	
Pine Creek	812.23	2.23	0.024	1812.22	6.96	0.001936	4.02	5.1	
Pine Creek	2369.61	4.61	0.035	10912.73	11.34	0.000534	8.39	4.4	
Pine Creek	850.90	2.17	0.023	1842.36	7.00	0.001875	4.06	5.1	
Pine Creek	10.37	100-year	30000.00	650.20	6.45	0.032	4190.02	10.76	0.002001
Pine Creek									8.1

Total flow in cross section.

- 5.5 Go to the “**Options**” menu and select the “**Profiles ...**” option. This brings up the **SELECT PROFILES** form from which Profiles can be selected for HEC-RAS to display. Make sure that both the Design profile (shown as 100-year) and the Bank full profile (shown as 10-year) are shown in the “**Selected**” column.



Press ‘**OK**’ to close the **SELECT PROFILES** form. The Table should now look similar to the following table.

HEC-RAS Plan: Scour Plan 1 River: Pine Creek Reach: Pine Creek											<input type="button" value="Reload Data"/>
Reach	River Sta	Profile	Q Total (cfs)	W.P. Total (ft)	Hydr Depth (ft)	Mann Wtd Total (sq ft)	Flow Area (ft)	Max Chl Dpth (ft/ft)	E.G. Slope (ft/ft)	Hydr Depth C (ft)	Vel Chnl (ft/s)
Pine Creek	10.90	100-year	30000.00	2283.26	3.02	0.031	6898.71	9.61	0.001861	6.67	7.0
Pine Creek	10.90	10-year	8500.00	791.97	2.26	0.024	1786.75	6.93	0.001993	3.99	5.2
Pine Creek	10.71	100-year	30000.00	2300.87	3.35	0.032	7705.07	9.96	0.001394	7.02	6.3
Pine Creek	10.71	10-year	8500.00	793.04	2.26	0.024	1788.87	6.93	0.001988	3.99	5.2
Pine Creek	10.55	100-year	30000.00	2343.96	4.14	0.034	9704.96	10.82	0.000743	7.88	5.0
Pine Creek	10.55	10-year	8500.00	812.23	2.23	0.024	1812.22	6.96	0.001936	4.02	5.1
Pine Creek	10.48	100-year	30000.00	2369.61	4.61	0.035	10912.73	11.34	0.000534	8.39	4.4
Pine Creek	10.48	10-year	8500.00	850.90	2.17	0.023	1842.36	7.00	0.001875	4.06	5.1
Pine Creek	10.37	100-year	30000.00	650.20	6.45	0.032	4190.02	10.76	0.002001	7.70	8.1

- 5.6 Highlight the data in the entire table (all the data are highlighted in blue). Click the “**Copy to Clipboard (Data and Headings)**” option (**File → Copy to Clipboard (Data and Headings)**) to copy the highlighted data and the headings to the clipboard.

HEC-RAS Plan: Scour Plan 1 River: Pine Creek Reach: Pine Creek											<input type="button" value="Reload Data"/>
Reach	River Sta	Profile	Q Total (cfs)	W.P. Total (ft)	Hydr Depth (ft)	Mann Wtd Total (sq ft)	Flow Area (ft)	Max Chl Dpth (ft/ft)	E.G. Slope (ft/ft)	Hydr Depth C (ft)	Vel Chnl (ft/s)
Pine Creek	10.90	100-year	30000.00	2283.26	3.02	0.031	6898.71	9.61	0.001861	6.67	7.0
Pine Creek	10.90	10-year	8500.00	791.97	2.26	0.024	1786.75	6.93	0.001993	3.99	5.2
Pine Creek	10.71	100-year	30000.00	2300.87	3.35	0.032	7705.07	9.96	0.001394	7.02	6.3
Pine Creek	10.71	10-year	8500.00	793.04	2.26	0.024	1788.87	6.93	0.001988	3.99	5.2
Pine Creek	10.55	100-year	30000.00	2343.96	4.14	0.034	9704.96	10.82	0.000743	7.88	5.0
Pine Creek	10.55	10-year	8500.00	812.23	2.23	0.024	1812.22	6.96	0.001936	4.02	5.1
Pine Creek	10.48	100-year	30000.00	2369.61	4.61	0.035	10912.73	11.34	0.000534	8.39	4.4
Pine Creek	10.48	10-year	8500.00	850.90	2.17	0.023	1842.36	7.00	0.001875	4.06	5.1
Pine Creek	10.37	100-year	30000.00	650.20	6.45	0.032	4190.02	10.76	0.002001	7.70	8.10
Pine Creek	10.37	10-year	8500.00	650.20	2.78	0.027	1808.31	7.09	0.001799	4.04	4.99
Pine Creek	10.36	Bridge									
Pine Creek	10.35	100-year	30000.00	625.19	5.78	0.032	3611.20	10.00	0.003011	7.06	9.38
Pine Creek	10.35	10-year	8500.00	598.12	2.84	0.027	1696.92	6.94	0.002020	4.00	5.25
Pine Creek	10.23	100-year	30000.00	1700.20	3.46	0.031	5886.98	9.60	0.002154	6.66	7.62
Pine Creek	10.23	10-year	8500.00	769.62	2.30	0.024	1771.55	6.92	0.002011	3.98	5.23
Pine Creek	10.17	100-year	30000.00	2185.94	2.99	0.030	6540.96	9.54	0.002044	6.60	7.38
Pine Creek	10.17	10-year	8500.00	771.66	2.30	0.024	1775.69	6.93	0.002001	3.99	5.22
Pine Creek	10.00	100-year	30000.00	2187.11	3.02	0.031	6594.84	9.57	0.002001	6.63	7.33
Pine Creek	10.00	10-year	8500.00	771.15	2.30	0.024	1774.66	6.93	0.002004	3.98	5.22

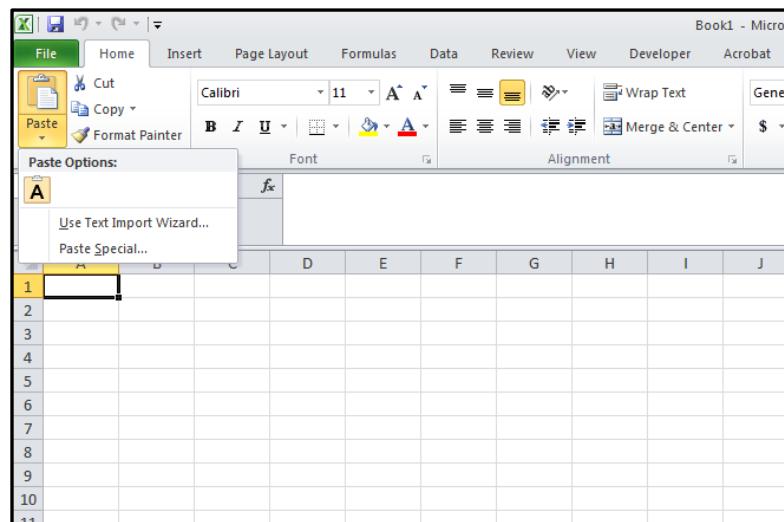
Total flow in cross section.

Please note that if the “**Copy to Clipboard (Data only)**” option is chosen, the columns will not be in the correct format and DDMSW will not be able to import the results.

Profile Output Table - DDMSW Scour										
File Options Std. Tables User Tables Locations Help			Scour Plan 1 River: Pine Creek Reach: Pine Creek							Reload Data
Copy to Clipboard (Data and Headings)			V.P. Total	Hydr Depth	Mann Wtd Total	Flow Area	Max Chl Dpth	E.G. Slope	Hydr Depth C	Vel Chnl
Copy to Clipboard (Data Only)			(ft)	(ft)	(sq ft)	(ft)	(ft/ft)	(ft)	(ft/s)	
Print ...			2283.26	3.02	0.031	6898.71	9.61	0.001861	6.67	7.09
Write to Text File ...			791.97	2.26	0.024	1786.75	6.93	0.001993	3.99	5.21
Export HEC5Q 58 Records ...										
Exit			2300.87	3.35	0.032	7705.07	9.96	0.001394	7.02	6.35
Pine Creek	10.71	10-year	8500.00	793.04	2.26	0.024	1788.87	6.93	0.001988	3.99
Pine Creek	10.55	100-year	30000.00	2343.96	4.14	0.034	9704.96	10.82	0.000743	7.88
Pine Creek	10.55	10-year	8500.00	812.23	2.23	0.024	1812.22	6.96	0.001936	4.02
Pine Creek	10.48	100-year	30000.00	2369.61	4.61	0.035	10912.73	11.34	0.000534	8.39
Pine Creek	10.48	10-year	8500.00	850.90	2.17	0.023	1842.36	7.00	0.001875	4.06
Pine Creek	10.37	100-year	30000.00	650.20	6.45	0.032	4190.02	10.76	0.002001	7.70
Pine Creek	10.37	10-year	8500.00	650.20	2.78	0.027	1808.31	7.09	0.001799	4.04
Pine Creek	10.36			Bridge						
Pine Creek	10.35	100-year	30000.00	625.19	5.78	0.032	3611.20	10.00	0.003011	7.06
Pine Creek	10.35	10-year	8500.00	598.12	2.84	0.027	1696.92	6.94	0.002020	4.00
Pine Creek	10.23	100-year	30000.00	1700.20	3.46	0.031	5886.98	9.60	0.002154	6.66
Pine Creek	10.23	10-year	8500.00	769.62	2.30	0.024	1771.55	6.92	0.002011	3.98
Pine Creek	10.17	100-year	30000.00	2185.94	2.99	0.030	6540.96	9.54	0.002044	6.60
Pine Creek	10.17	10-year	8500.00	771.66	2.30	0.024	1775.69	6.93	0.002001	3.99
Pine Creek	10.00	100-year	30000.00	2187.11	3.02	0.031	6594.04	9.57	0.002001	6.63
Pine Creek	10.00	10-year	8500.00	771.15	2.30	0.024	1774.66	6.93	0.002004	3.98

Total flow in cross section.

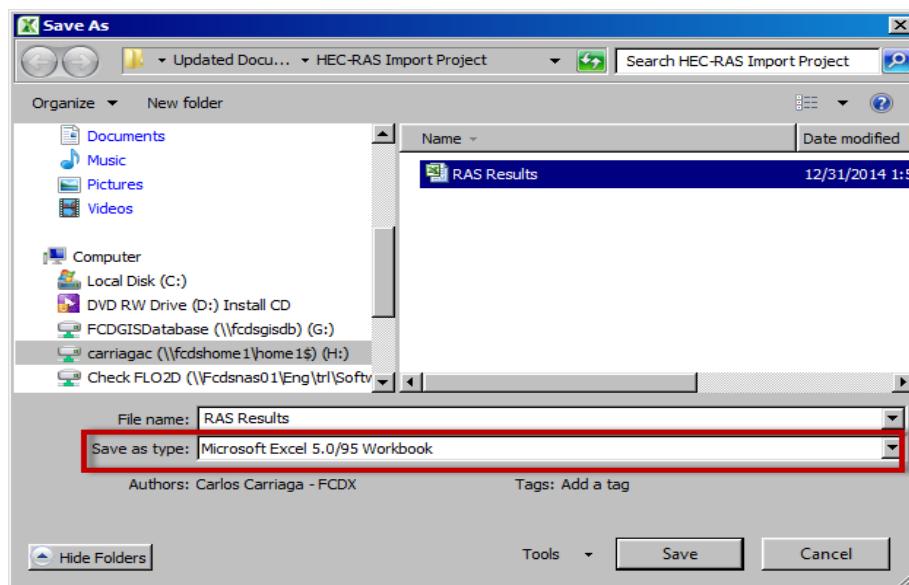
- 5.7 Open a blank Excel sheet and make sure cell A1 is selected. Click the “**Paste**” option under the “**Home**” menu.



The Excel file should now look similar to the following file.

HEC-RAS Plan: Existing River: RIVER-1 Reach: Reach-1												
Reach	River Sta	Profile	Q Total	W.P. Total	Hydr Dept	Mann Wtc	Flow Area	Max Chl D	E.G. Slope	Hydr Dept	Vel	Chnl
			(cfs)	(ft)	(ft)		(sq ft)	(ft)	(ft/ft)	(ft)	(ft/s)	
Pine Cree	10.9	100-year	30000	2283.26	3.02	0.031	6898.71	9.61	0.001861	6.67	7.09	
Pine Cree	10.9	10-year	8500	791.97	2.26	0.024	1786.75	6.93	0.001993	3.99	5.21	
Pine Cree	10.71	100-year	30000	2300.87	3.35	0.032	7705.07	9.96	0.001394	7.02	6.35	
Pine Cree	10.71	10-year	8500	793.04	2.26	0.024	1788.87	6.93	0.001988	3.99	5.21	
Pine Cree	10.55	100-year	30000	2343.96	4.14	0.034	9704.96	10.82	0.000743	7.88	5.01	
Pine Cree	10.55	10-year	8500	812.23	2.23	0.024	1812.22	6.96	0.001936	4.02	5.16	
Pine Cree	10.48	100-year	30000	2369.61	4.61	0.035	10912.73	11.34	0.000534	8.39	4.43	
Pine Cree	10.48	10-year	8500	850.9	2.17	0.023	1842.36	7	0.001875	4.06	5.11	
Pine Cree	10.37	100-year	30000	650.2	6.45	0.032	4190.02	10.76	0.002001	7.7	8.1	
Pine Cree	10.37	10-year	8500	650.2	2.78	0.027	1808.31	7.09	0.001799	4.04	4.99	
Pine Cree	10.36	Bridge										
Pine Cree	10.35	100-year	30000	625.19	5.78	0.032	3611.2	10	0.003011	7.06	9.38	
Pine Cree	10.35	10-year	8500	598.12	2.84	0.027	1696.92	6.94	0.00202	4	5.25	
Pine Cree	10.23	100-year	30000	1700.2	3.46	0.031	5886.98	9.6	0.002154	6.66	7.62	
Pine Cree	10.23	10-year	8500	769.62	2.3	0.024	1771.55	6.92	0.002011	3.98	5.23	
Pine Cree	10.17	100-year	30000	2185.94	2.99	0.03	6540.96	9.54	0.002044	6.6	7.38	
Pine Cree	10.17	10-year	8500	771.66	2.3	0.024	1775.69	6.93	0.002001	3.99	5.22	
Pine Cree	10	100-year	30000	2187.11	3.02	0.031	6594.84	9.57	0.002001	6.63	7.33	
Pine Cree	10	10-year	8500	771.15	2.3	0.024	1774.66	6.93	0.002004	3.98	5.22	

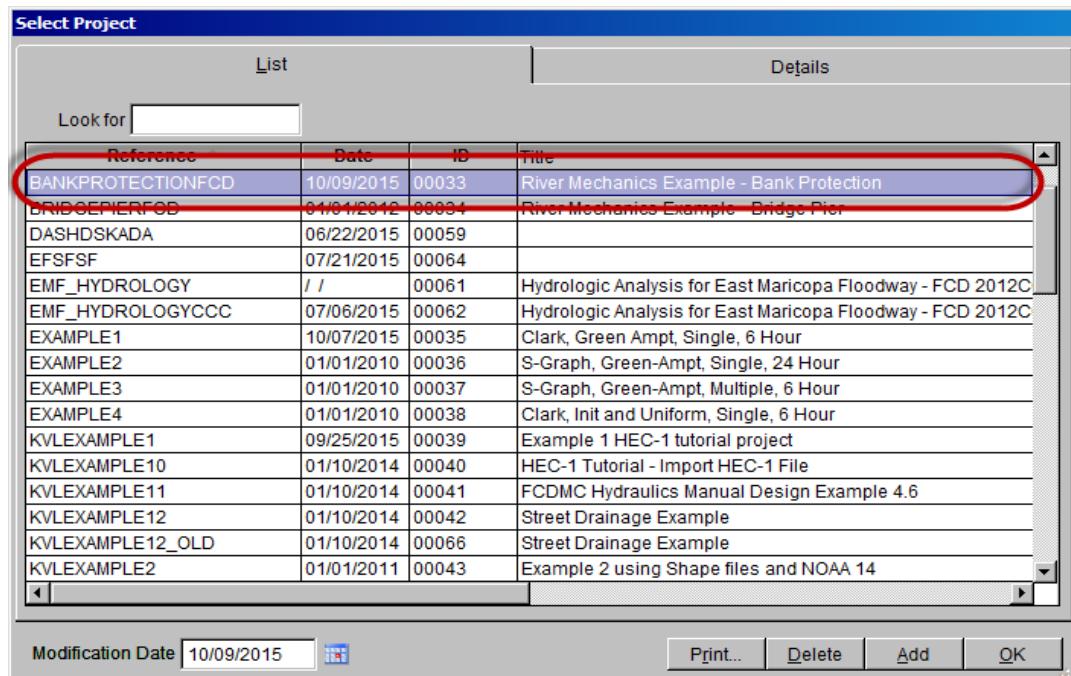
5.8 Click the “Save As...” option under the “File” menu.



Give the file a descriptive name (say, “RAS Results”) and save the file in the **Microsoft Excel 5.0/95 Workbook** format.

6.0 IMPORT THE HEC-RAS DATA INTO DDMSW.

- 6.1 Launch the DDMSW program and open the **SELECT PROJECT** form (**File → Select Project**). Select the ‘BANKPROTECTIONFCD’ Project and click ‘OK’ close the form.



- 6.2 Open the **RIVER MECHANICS – CROSS SECTION HYDRAULICS** form (**River Mechanics → Cross Section Hydraulics**). Press the ‘Add’ button to add additional data. Enter ‘RASCROSSESECTION’ in the **Section ID** textbox field. On the “Source” drop down list, select ‘HEC-RAS’ and check the “Total Scour checkbox. Press “Save” to save the data entered.

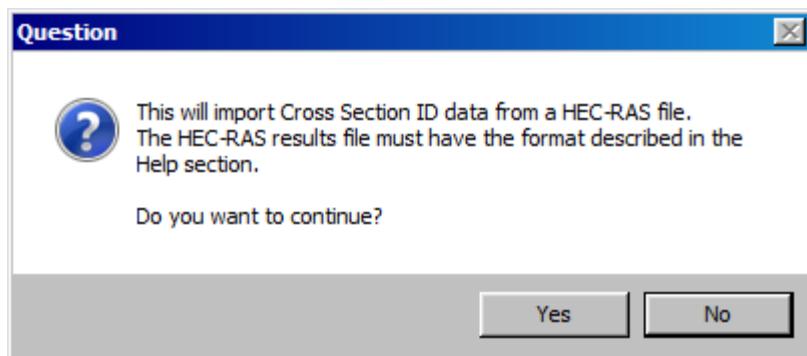
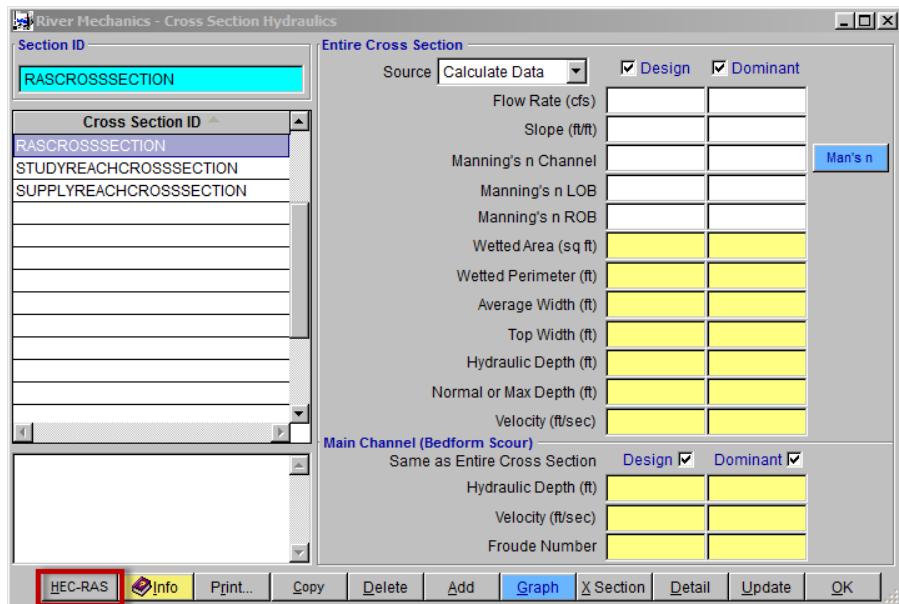
River Mechanics - Cross Section Hydraulics -- Add

Section ID	Entire Cross Section		Design	Dominant
RASCROSSECTION	Source	HEC-RAS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Total Scour	<input checked="" type="checkbox"/>	Flow Rate (cfs)	
			Slope (ft/ft)	
			Manning's n Channel	
			Manning's n LOB	
			Manning's n ROB	
			Flow Area (sq ft)	
			Wetted Perimeter (ft)	
			Average Width (ft)	
			Top Width (ft)	
			Hydraulic Depth (ft)	
			Normal or Max Depth (ft)	
			Velocity (ft/sec)	
	Main Channel (Bedform Scour)			
		Hydraulic Depth (ft)		
		Velocity (ft/sec)		
		Froude Number		
	Save	Cancel	Print...	Copy
	Delete	Add	Graph	X Section
	Detail	Update	OK	...

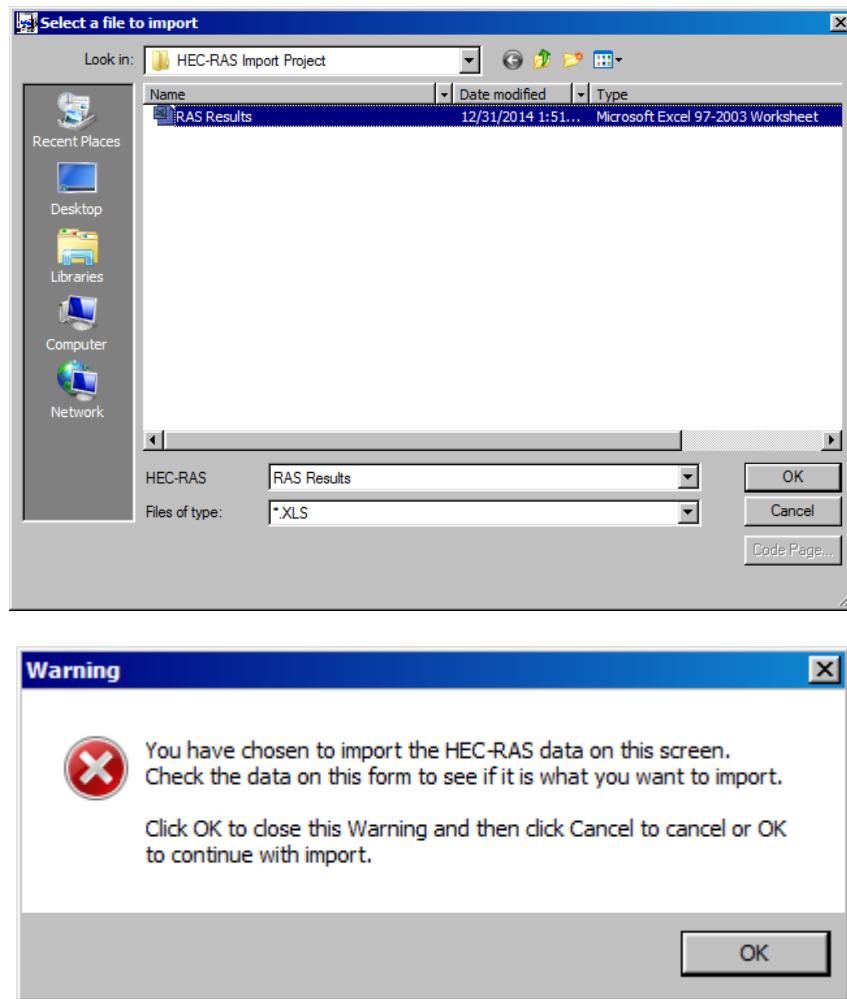
River Mechanics - Cross Section Hydraulics -- Add

Section ID	Entire Cross Section		Design	Dominant
RASCROSSECTION	Source	Calculate Data	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Flow Rate (cfs)		
		Slope (ft/ft)		
		Manning's n Channel		Man's n
		Manning's n LOB		
		Manning's n ROB		
		Wetted Area (sq ft)		
		Wetted Perimeter (ft)		
		Average Width (ft)		
		Top Width (ft)		
		Hydraulic Depth (ft)		
		Normal or Max Depth (ft)		
		Velocity (ft/sec)		
	Main Channel (Bedform Scour)			
	Same as Entire Cross Section			
		Design	<input checked="" type="checkbox"/>	Dominant
		Hydraulic Depth (ft)		
		Velocity (ft/sec)		
		Froude Number		
	Save	Cancel	Print...	Copy
	Delete	Add	Graph	X Section
	Detail	Update	OK	...

- 6.3 Press the '**HEC-RAS**' button at the bottom left of the form to import the "RAS Results.xls". Click 'Yes' to continue.



- 6.4 Select the Data File to Import. On the **SELECT A FILE TO IMPORT** form, go to the folder where the '*RAS Results.xls*' was saved earlier and select the file. Click '**OK**' to continue. Click '**OK**' when a **WARNING** windows shows up to continue.



- 6.5 Select the Design and Dominant Profiles. On the **IMPORT HEC-RAS DATA** form, click the magnifying glass on the right side of the **Design** textbox field and select '100-year'. For the **Dominant** Profile, select '10-year'.

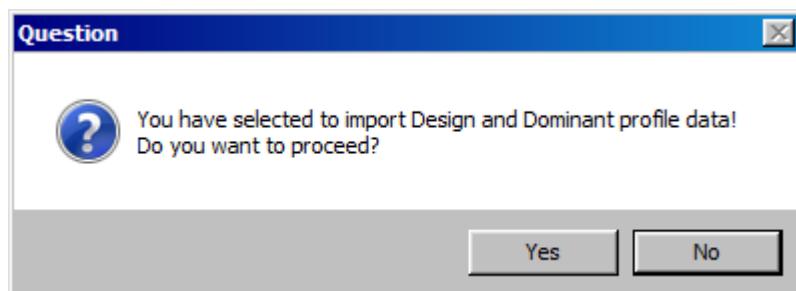
Reach	Sta	Profile	Q Total	Filename
Pine Creek	10.9	100-year	30000	RAS RESULTS
Pine Creek	10.9	10-year	8500	RAS RESULTS
Pine Creek	10.71	100-year	30000	RAS RESULTS
Pine Creek	10.71	10-year	8500	RAS RESULTS
Pine Creek	10.55	100-year	30000	RAS RESULTS
Pine Creek	10.55	10-year	8500	RAS RESULTS
Pine Creek	10.48	100-year	30000	RAS RESULTS
Pine Creek	10.48	10-year	8500	RAS RESULTS
Pine Creek	10.37	100-year	30000	RAS RESULTS
Pine Creek	10.37	10-year	8500	RAS RESULTS
Pine Creek	10.35	100-year	30000	RAS RESULTS
Pine Creek	10.35	10-year	8500	RAS RESULTS
Pine Creek	10.23	100-year	30000	RAS RESULTS
Pine Creek	10.23	10-year	8500	RAS RESULTS
Pine Creek	10.17	100-year	30000	RAS RESULTS
Pine Creek	10.17	10-year	8500	RAS RESULTS
Pine Creek	10	100-year	30000	RAS RESULTS

Select Profiles

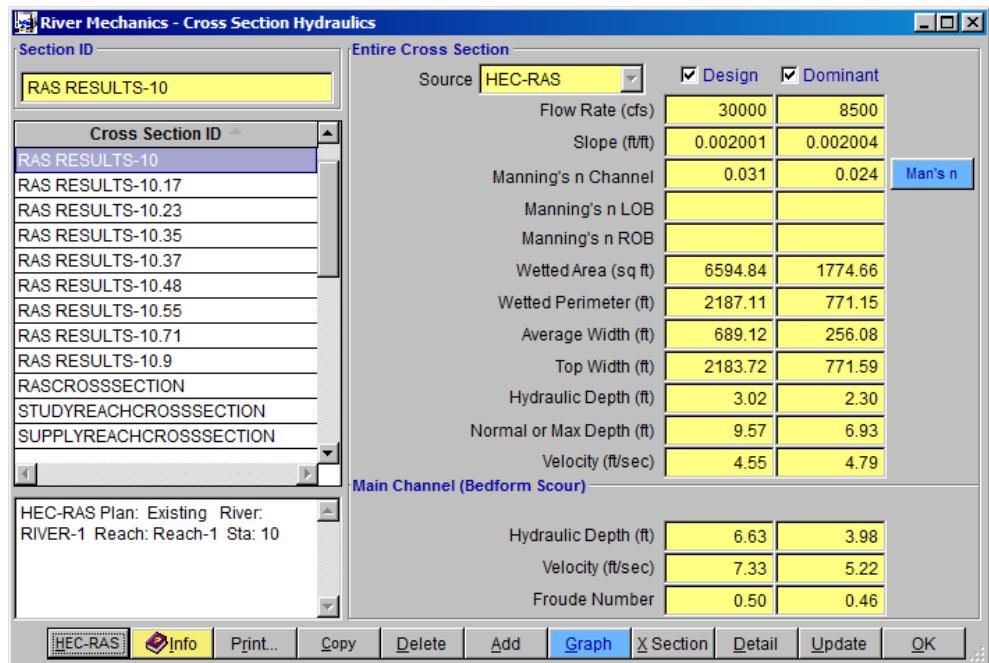
Design	100-year	
Dominant	10-year	

OK **Cancel**

Press '**OK**' to proceed and click '**Yes**' to import the data.



The **RIVER MECHANICS – CROSS SECTION HYDRAULICS** form provided below shows the results of the successful import. The user can now select from the list of cross section IDs to use for his or her River Mechanics analysis. Click '**OK**' to close the form.



This ends this tutorial.